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| 10/025,339 | 12/19/2001 | Peter N. Slater | | 3514 |

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| EXAMINER |
|---|
| RINEHART, KENNETH |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3749 | 7 |

DATE MAILED: 07/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/025,339 | SLATER ET AL. | |
| | Examiner | Art Unit | |
| | Kenneth B Rinehart | 3749 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *30 April 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-16, 18-48* is/are pending in the application.

4a) Of the above claim(s) *46-48* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7,11,15,16,18,22,26 and 30-36* is/are rejected.

7)☒ Claim(s) *4-6,8-10,12-14,19-21,23-25,27-29 and 37-45* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### *Election/Restrictions*

Applicant's election with traverse of a method in Paper No. 3 is acknowledged. The traversal is on the ground(s) that Both Groups are sufficiently related in this application to be allowable in a single application and both groups relate to optimizing the efficiency of combustion devices. This is not found persuasive because the examiner has presented a prima facie showing in the restriction, which can only be rebutted, by an appropriate showing or evidence by the applicant. The applicant has responded by making assertions that both groups are closely related since they both relate to optimizing the efficiency of combustion devices. These conclusory statements are not adequate evidence or an adequate showing.

The requirement is still deemed proper and is therefore made FINAL.

Claims 46-48 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 3.

This application contains claims 46-48 drawn to an invention nonelected with traverse in Paper No. 3. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### *Response to Arguments*

Applicant's arguments with respect to claims 1-3, 7, 11, 15, 16, 18, 22, 26, 30-35, and 36 have been considered but are moot in view of the new ground(s) of rejection. The applicant argues that Yuino does not disclose and Applicants have not found, individually adjusting the airflow to each burner assembly in each control zone in response to a temperature sensor or any

other combustion characteristic corresponding to each control zone to keep the value of each combustion characteristic within a predetermined range. In order for combustion to occur both a fuel and oxygen must be present. Yuino illustrates a control valve that is opened or closed based upon a signal sent from controller 7. This signal is sent based upon a temperature of a temperature sensor T2. In this manner the temperature will be maintained within a predetermined range. The applicant next argues that Sakai does not disclose and applicant's have not found , at least one gas analyzer operably related to each control zone. As the constitution states there is an oxygen concentration meter 8, a CO concentration meter 9, which determine the concentration of these species. The Applicant next argues that there is no motivation to combine. The examiner disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In this particular case an individual of ordinary skill would combine the references to reduce the NOX emissions and thus meet environmental requirements of the EPA.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yuino. Yuino discloses A method of optimizing the efficiency of a combustion device comprising at least ... control zones, each of said control zones comprising at least one burner assembly (1, fig. 1), said method comprising: individually supplying fuel to each of said burner assemblies in each of said control zones (col. 1, lines 25-41); individually measuring a combustion characteristic of the collective combusted gases from said burner assemblies in each of said control zones (col. 2, lines 9-20); and individually adjusting the flow of air to each of said burner assemblies in each of said control zones in response to the value of said combustion characteristic corresponding to each of said control zones to keep the value of each of said combustion characteristics within a predetermined range (col. 4, lines 17-26, col. 4, lines 36-52). Yuino discloses applicant's invention substantially as claimed with the exception of three zones. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have three zones because Applicant has not disclosed that the number of zones provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the zone of Yuino or the claimed three zones because both quantities of zones perform the same function of controlling the combustion process equally well.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuino in view of Sakai. Yuino discloses A method of optimizing the efficiency of a combustion device comprising at least ... control zones, each of said control zones comprising at least one burner assembly (1, fig. 1), said method comprising: individually supplying fuel to each of said burner assemblies in each of said control zones (col. 1, lines 25-41); individually measuring a

combustion characteristic of the collective combusted gases from said burner assemblies in each of said control zones (col. 2, lines 9-20); and individually adjusting the flow of air to each of said burner assemblies in each of said control zones in response to the value of said combustion characteristic corresponding to each of said control zones to keep the value of each of said combustion characteristics within a predetermined range (col. 4, lines 17-26, col. 4, lines 36-52). Yuino discloses applicant's invention substantially as claimed with the exception of said combustion characteristic comprises a component selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof, said combustion characteristic is oxygen. Saiko teaches said combustion characteristic comprises a component selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof, said combustion characteristic is oxygen (Constitution) for the purpose of reducing NOX. It would have been obvious to one of ordinary skill in the art to modify Yuino by including said combustion characteristic comprises a component selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof, said combustion characteristic is oxygen as taught by Saiko for the purpose of reducing NOX to meet environmental requirements. Yuino in view of Sakai discloses applicant's invention substantially as claimed with the exception of three zones. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have three zones because Applicant has not disclosed that the number of zones provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform

equally well with either the zone of Yuino or the claimed three zones because both quantities of zones perform the same function of controlling the combustion process equally well.

Claims 7, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuino in view of Neum. Yuino discloses A method of optimizing the efficiency of a combustion device comprising at least ... control zones, each of said control zones comprising at least one burner assembly (1, 2, 3, fig. 1), said method comprising: individually supplying fuel to each of said burner assemblies in each of said control zones (col. 1, lines 25-41); individually measuring a combustion characteristic of the collective combusted gases from said burner assemblies in each of said control zones (col. 2, lines 9-20); and individually adjusting the flow of air to each of said burner assemblies in each of said control zones in response to the value of said combustion characteristic corresponding to each of said control zones to keep the value of each of said combustion characteristics within a predetermined range (col. 4, lines 17-26, col. 4, lines 36-52). Yuino discloses applicant's invention substantially as claimed with the exception of three zones, said combustion characteristic is carbon dioxide, said combustion characteristic is carbon monoxide. Neum teaches said combustion characteristic is carbon dioxide, said combustion characteristic is carbon monoxide (Abstract) for the purpose of maintaining optimal combustion. It would have been obvious to one of ordinary skill in the art to modify Yuino by including said combustion characteristic is carbon dioxide, said combustion characteristic is carbon monoxide as taught by Neum for the purpose of maintaining optimal combustion to reduce operating costs. Yuino in view of Neum discloses applicant's invention substantially as claimed with the exception of three zones. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have three zones because

Applicant has not disclosed that the number of zones provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the zone of Yuino or the claimed three zones because both quantities of zones perform the same function of controlling the combustion process equally well.

Claim 15-16, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuino in view of Lewis. Yuino discloses A method of optimizing the efficiency of a combustion device comprising at least ... control zones, each of said control zones comprising at least one burner assembly (1, 2, 3, fig. 1), said method comprising: individually supplying fuel to each of said burner assemblies in each of said control zones (col. 1, lines 25-41); individually measuring a combustion characteristic of the collective combusted gases from said burner assemblies in each of said control zones (col. 2, lines 9-20); and individually adjusting the flow of air to each of said burner assemblies in each of said control zones in response to the value of said combustion characteristic corresponding to each of said control zones to keep the value of each of said combustion characteristics within a predetermined range (col. 4, lines 17-26, col. 4, lines 36-52), individually supplying ... air to each of said burner assemblies in each of said control zones for mixture and at least partial combustion with said fuel supplied thereto thereby producing a separate ... combustion product for each of said burner assemblies (fig. 1, fig. 2, col. 4, lines 16-26) , individually supplying ... air to each of said burner assemblies in each of said control zones ... for each of said burner assemblies (fig. 2), individually adjusting the flow of aid ... air and individually adjusting the flow of said ... air to each of said burner assemblies in each of said control zones in response to the value of said combustion characteristic corresponding to

each of said control zones to keep the value of each of said combustion characteristics within a predetermined range (col. 4, lines 17-26, col. 4, lines 36-52), the flow of said ...air to each of said burner assemblies is adjusted in response to the value of said combustion characteristic corresponding to each of said control zones first ... as needed in order to keep the value of each of said combustion characteristics within said predetermined range (col. 4, lines 17-26, col. 4, lines 36-52). Yuino discloses applicant's invention substantially as claimed with the exception of three zones, primary, intermediate, secondary, for mixture with said intermediate combustion product for further combustion thereby producing a combusted gas stream, followed by adjustment of the flow of said secondary air, wherein said combustion characteristic is selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof said combustion characteristic is oxygen concentration . Lewis teaches primary (7, figure 2), intermediate (4, fig. 2), secondary (9, fig. 2), for mixture with said intermediate combustion product for further combustion thereby producing a combusted gas stream (6, figure 2), followed by adjustment of the flow of said secondary air (col. 3, lines 61-65), wherein said combustion characteristic is selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration and combinations thereof said combustion characteristic is oxygen concentration (col. 4, lines 5-6) for the purpose of eliminating the need for additional instrumentation and eliminating pollutants. It would have been obvious to one of ordinary skill in the art to modify Yuino by including primary, intermediate, secondary, for mixture with said intermediate combustion product for further combustion thereby producing a combusted gas stream, followed by adjustment of the flow of said secondary air, wherein said combustion characteristic is selected from the group

consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof said combustion characteristic is oxygen concentration as taught by Lewis for the purpose of eliminating the need for additional instrumentation and eliminating pollutants and thus reducing costs and meeting environmental requirements. Yuino in view of Lewis discloses applicant's invention substantially as claimed with the exception of three zones. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have three zones because Applicant has not disclosed that the number of zones provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the zone of Yuino or the claimed three zones because both quantities of zones perform the same function of controlling the combustion process equally well.

Claims 22, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuino in view of Lewis and Neum. Yuino discloses A method of optimizing the efficiency of a combustion device comprising at least ... control zones, each of said control zones comprising at least one burner assembly (1, 2, 3, fig. 1), said method comprising: individually supplying fuel to each of said burner assemblies in each of said control zones (col. 1, lines 25-41); individually measuring a combustion characteristic of the collective combusted gases from said burner assemblies in each of said control zones (col. 2, lines 9-20); individually supplying ... air to each of said burner assemblies in each of said control zones for mixture and at least partial combustion with said fuel supplied thereto thereby producing a separate ... combustion product for each of said burner assemblies (fig. 1, fig. 2, col. 4, lines 16-26) , individually supplying ...

air to each of said burner assemblies in each of said control zones ... for each of said burner assemblies (fig. 2), individually adjusting the flow of aid ... air and individually adjusting the flow of said ... air to each of said burner assemblies in each of said control zones in response to the value of said combustion characteristic corresponding to each of said control zones to keep the value of each of said combustion characteristics within a predetermined range (col. 4, lines 17-26, col. 4, lines 36-52). Yuino discloses applicant's invention substantially as claimed with the exception of three zones, primary, intermediate, secondary, for mixture with said intermediate combustion product for further combustion thereby producing a combusted gas stream, said combustion characteristic is carbon dioxide concentration, said combustion characteristic is carbon monoxide concentration, wherein said combustion characteristic is selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof. Lewis teaches primary (7, figure 2), intermediate (4, fig. 2), secondary (9, fig. 2), for mixture with said intermediate combustion product for further combustion thereby producing a combusted gas stream (6, figure 2) for the purpose of eliminating the need for additional instrumentation. It would have been obvious to one of ordinary skill in the art to modify Yuino by including primary, intermediate, secondary, for mixture with said intermediate combustion product for further combustion thereby producing a combusted gas stream, as taught by Lewis for the purpose of eliminating the need for additional instrumentation and eliminating pollutants and thus reducing costs and meeting environmental requirements. Yuino in view of Lewis discloses applicant's invention substantially as claimed with the exception of three zones, said combustion characteristic is carbon dioxide, said combustion characteristic is carbon monoxide concentration, wherein said

combustion characteristic is selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof. Neum teaches said combustion characteristic is carbon dioxide, said combustion characteristic is carbon monoxide concentration, wherein said combustion characteristic is selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof (Abstract) for the purpose of maintaining optimal combustion. It would have been obvious to one of ordinary skill in the art to modify Yuino by including said combustion characteristic is carbon dioxide, said combustion characteristic is carbon monoxide concentration, wherein said combustion characteristic is selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof as taught by Neum for the purpose of maintaining optimal combustion to reduce operating costs. Yuino in view of Lewis and Neum discloses applicant's invention substantially as claimed with the exception of three zones. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have three zones because Applicant has not disclosed that the number of zones provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the zone of Yuino or the claimed three zones because both quantities of zones perform the same function of controlling the combustion process equally well.

Claims 30-33, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai in view of Lewis. Sakai discloses at least ... control zone, each of said control zones

comprising at least one burner assembly (1, fig.), at least one gas analyzer related to each of said control zones for receiving and analyzing samples of combusted gas from each of said control zones (8, 9, fig.), each of said burner assemblies comprising a fuel introduction means for introducing fuel into said burner (fig.), control means operably related to said ... air introduction means and ... air introduction means (11, 13, fig.), and at least one gas analyzer (8, 9, fig.), for adjusting the flow of ... air and the flow of ... air to each of said burner assemblies in each of said control zones through said ... air introduction means and said ... air introduction means (5, fig.) , respectively in response to the value of a combustion characteristic measured in the collective combusted gas streams corresponding to each of the control zones (18 a, 18b ,18 c, fig. ), said combustion characteristic is oxygen concentration (Constitution), said combustion characteristic is carbon monoxide concentration (Constitution), introducing fuel into each of said burner assemblies in each of said control zones via said fuel introduction means (fig.), introducing ... air into said burner assemblies in each of said control zones via said ... air introduction means (14, fig.) for mixture and at least partial combustion with said fuel thereby producing an .... combustion product (fig.), introducing ... air into said burner assemblies in each of said control zones via said ... air introduction means (14, fig.), individually measuring the value of a combustion characteristic in the collective combusted gas streams corresponding to each of said control zones (18a, 18b, 18c, fig.), adjusting the flow of said ... air flow and said ... air to each of said burner assemblies in each of said control zones through said ... air introduction means and said ... air introduction means, respectively, in response to the value of said combustion characteristics measured in step e corresponding to each of said control zones (Constitution, fig.), in each of said control zones (fig.), each of said control zones (fig.). Saki

discloses applicant's invention substantially as claimed with the exception of three zones, primary, secondary, intermediate, a primary air introduction means for introducing primary air into said burner assembly for mixture and at least partial combustion with said fuel, thereby producing an intermediate combustion product, and a secondary air introduction means for introducing secondary air into said burner assembly for mixture and further combustion with said intermediate combustion product, thereby producing a combusted gas stream for each of said burner assemblies, said primary air introduction means comprises an adjustable primary air register, and said secondary air introduction means comprises an adjustable secondary air register, for mixture and further combustion with said intermediate combustion products thereby producing a combusted gas stream for each of said burner assemblies, the flow of said primary air to each of said burner assemblies ... is adjusted via said control means in response to the value of said combustion characteristic corresponding to... first followed by adjustment of the flow of said secondary air, as needed, via said control means in order to keep the value of each of said combustion characteristics within a predetermined range. Lewis teaches primary (1, fig. 2), secondary (5, fig. 2), intermediate (4, fig.2), a primary air introduction means for introducing primary air into said burner assembly for mixture and at least partial combustion with said fuel (7, fig. 1), thereby producing an intermediate combustion product (4, fig. 1), and a secondary air introduction means for introducing secondary air into said burner assembly for mixture (9, fig. 2) and further combustion with said intermediate combustion product, thereby producing a combusted gas stream for each of said burner assemblies (6, fig. 2), said primary air introduction means comprises an adjustable primary air register (17, fig. 2) and said secondary air introduction means comprises an adjustable secondary air register (10, fig. 2), for mixture and

further combustion with said intermediate combustion products thereby producing a combusted gas stream for each of said burner assemblies (9, 5, fig. 2), the flow of said primary air to each of said burner assemblies ... is adjusted via said control means in response to the value of said combustion characteristic corresponding to... first followed by adjustment of the flow of said secondary air , as needed, via said control means in order to keep the value of each of said combustion characteristics within a predetermined range (col. 3, lines 60-65) for the purpose of eliminating the need for additional instrumentation. It would have been obvious to one of ordinary skill in the art to modify Sakai by including primary, secondary, for mixture with said intermediate combustion product for further combustion thereby producing a combusted gas stream, a primary air introduction means for introducing primary air into said burner assembly for mixture and at least partial combustion with said fuel, thereby producing an intermediate combustion product, and a secondary air introduction means for introducing secondary air into said burner assembly for mixture and further combustion with said intermediate combustion product, thereby producing a combusted gas stream for each of said burner assemblies, said primary air introduction means comprises an adjustable primary air register, and said secondary air introduction means comprises an adjustable secondary air register, for mixture and further combustion with said intermediate combustion products thereby producing a combusted gas stream for each of said burner assemblies, the flow of said primary air to each of said burner assemblies ... is adjusted via said control means in response to the value of said combustion characteristic corresponding to... first followed by adjustment of the flow of said secondary air , as needed, via said control means in order to keep the value of each of said combustion characteristics within a predetermined range as taught by Lewis for the purpose of eliminating

the need for additional instrumentation and eliminating pollutants and thus reducing costs and meeting environmental requirements. Sakai in view of Lewis discloses applicant's invention substantially as claimed with the exception of three zones. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have three zones because Applicant has not disclosed that the number of zones provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the zone of Sakai or the claimed three zones because both quantities of zones perform the same function of controlling the combustion process equally well.

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai in view of Lewis and Neum. Sakai discloses at least ... control zones, each of said control zones comprising at least one burner assembly (1, fig.), at least one gas analyzer related to each of said control zones for receiving and analyzing samples of combusted gas from said control zones (8, 9, fig.), each of said burner assemblies comprising a fuel introduction means for introducing fuel into said burner (fig.), control means operably related to said ...air introduction means and ... air introduction means (11, 13, fig.), and at least one gas analyzer (8, 9, fig.), for adjusting the flow of ... air and the flow of ... air to each of said burner assemblies in each of said control zones through said ... air introduction means and said ... air introduction means (5, fig.) , respectively in response to the value of a combustion characteristic measured in the collective combusted gas streams corresponding to each of the control zones (18 a, 18b ,18 c, fig. ). Saiki discloses applicant's invention substantially as claimed with the exception of three zones, primary, secondary, a primary air introduction means for introducing primary air into said burner

assembly for mixture and at least partial combustion with said fuel, thereby producing an intermediate combustion product, and a secondary air introduction means for introducing secondary air into said burner assembly for mixture and further combustion with said intermediate combustion product, thereby producing a combusted gas stream for each of said burner assemblies. Lewis teaches primary (1, fig. 2), secondary (5, fig. 2), a primary air introduction means for introducing primary air into said burner assembly for mixture and at least partial combustion with said fuel (7, fig. 1), thereby producing an intermediate combustion product (4, fig. 1), and a secondary air introduction means for introducing secondary air into said burner assembly for mixture (9, fig. 2) and further combustion with said intermediate combustion product, thereby producing a combusted gas stream for each of said burner assemblies (6, fig. 2) for the purpose of eliminating the need for additional instrumentation. It would have been obvious to one of ordinary skill in the art to modify Sakai by including primary, secondary, intermediate, a primary air introduction means for introducing primary air into said burner assembly for mixture and at least partial combustion with said fuel, thereby producing an intermediate combustion product, and a secondary air introduction means for introducing secondary air into said burner assembly for mixture and further combustion with said intermediate combustion product, thereby producing a combusted gas stream for each of said burner assemblies as taught by Lewis for the purpose of eliminating the need for additional instrumentation and eliminating pollutants and thus reducing costs and meeting environmental requirements. Sakai in view of Lewis discloses applicant's invention substantially as claimed with the exception of three zones, said combustion characteristic is carbon dioxide. Neum teaches said combustion characteristic is carbon dioxide (Abstract) for the purpose of

maintaining optimal combustion. It would have been obvious to one of ordinary skill in the art to modify Saiki by including said combustion characteristic is carbon dioxide as taught by Neum for the purpose of maintaining optimal combustion to reduce operating costs. Sakai in view of Lewis and Neum discloses applicant's invention substantially as claimed with the exception of three zones. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have three zones because Applicant has not disclosed that the number of zones provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the zone of Sakai or the claimed three zones because both quantities of zones perform the same function of controlling the combustion process equally well.

### *Allowable Subject Matter*

Claims 4-6, 8-10, 12-14, 19-21, 23-25, and 27-29, 37-45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth B Rinehart whose telephone number is 703-308-1722. The examiner can normally be reached on 7:30-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 703-308-1935. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9302 for regular communications and 703-308-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.

KBR
June 27, 2003

Ira S. Lazarus
Supervisory Patent Examiner
Group 3700